



Yang Y, Asaad Y, Dwivedi Y.

[Examining the impact of gamification on intention of engagement and brand attitude in the marketing context.](#)

Computers in Human Behavior 2017, 73, 459-469.

Copyright:

© 2017. This manuscript version is made available under the [CC-BY-NC-ND 4.0 license](#)

DOI link to article:

<https://doi.org/10.1016/j.chb.2017.03.066>

Date deposited:

01/04/2017

Embargo release date:

03 April 2018



This work is licensed under a

[Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International licence](#)

Examining the Impact of Gamification on Intention of Engagement and Brand Attitude in the Marketing Context

Abstract

The development of multiple applications with features of games has brought about a new trend – gamification. Gamification has become a fast-emerging practice in the business world, with a growing number of organizations adopting gaming techniques and game-style rewards in order to increase customer engagement. Despite this growing trend and the potential role played by gamification, the marketing literature lacks models that explain the use of gamification in the marketing context, customers' perceptions of gamification and its effects on their attitudes towards the brand. This study addresses this omission by adopting the TAM framework in a gamification context. Similar to TAM, gamification finds its roots in the technology and information systems literatures. Drawing on TAM, this study presents a model that examines the effects of gamification on customers' intention to engage in the gamification process and their attitudes toward the brand. Using a quantitative methodology, the results provide empirical support for perceived usefulness and perceived enjoyment as predictors to intention of engagement and brand attitude. However, perceived ease of use was surprisingly found not to be significantly related to people's intention of engagement with the gamification process and their brand attitude. In addition, perceived social influence was found not to be related to people's intention of engagement, but was related to their brand attitude. The findings of this research have theory and practical implications.

Keywords Gamification, TAM, Brand attitude, Engagement

Introduction

The concept of gamification and its mechanics in non-gaming environments has become a fast-emerging practice in business, especially in marketing. Though in its infancy, the dynamics and techniques of gamification have been found to be easily transferrable from their gaming software origins into the world of commerce. The use of gamification tools and methods has the potential to benefit organizations from all industries because of their fundamental potential to shape and influence behaviors and attitudes. A growing number of organizations are adopting gaming techniques and game-style rewards in order to increase customer engagement (Gartner Research, 2011). Despite the practical importance of gamification, current gamification literature remains anecdotal and lacks academic rigour (Hamari et al., 2014). In other words, a conceptualisation of gamification for a specific purpose has rarely been provided when people have undertaken academic research in gamification in various contexts. Second, since gamification is a relatively new concept, it is largely unclear how an effective design can be realised (Deterding et al., 2011) for a specific purpose. Burk (2013) noted that there are often unrealistic expectations of success, and consequently many businesses are implementing gamification without a proper examination of whether or not gamification is the right instrument to improve their business processes. Due to poor design of gamification, some practices have failed in reaching business objectives (Gartner Research, 2012). Furthermore, there is no uniform approach to developing and successfully implementing gamification aspects in an existing process. This means that there is limited knowledge on how gamification can be structurally applied in many processes. It is also unknown if gamification is appropriate for changing people's behavior or attitude in all types of business processes (Salen &

Zimmerman, 2004). Third, academic evidence of the effects or benefits of gamification is lacking.

Gamification is regarded as a new technology-based system which has been applied to different areas. In the field of information systems, technology acceptance theories have examined the adoption of technology-based systems. In particular, the technology acceptance model (TAM) is a well-established, robust and parsimonious model for predicting user acceptance. However, the model has been criticised for disregarding other important aspects (e.g. social aspects) that may predict technology acceptance. The model is also said to overlook other types of behavioral intentions or attitudes specific to particular contexts. Through an extension of the TAM model, this study aims to examine the concept of gamification in the marketing context through and its effects on users' engagement intention and attitude towards the brand.

Literature review

Gamification

Gamification is a relatively new term, especially when it is used in relation to the internet, but it is not a new concept. The roots of gamification originate in the digital media industry (Deterding et al., 2011) and started out with the term “funware” (Tahashi, 2008). Gabe Zichermann first employed this term. The author defined it as “the art and science of turning your customer's everyday interactions into games that serve your business purposes” (Zichermann & Linder, 2010, p. 20). Gamification gained widespread recognition in the 2010s, when several industry players popularised it (Deterding, 2011). Companies like Bunchball and Badgville created platforms for integrating game elements into sites.

Gamification is perceived as a system applying game design elements to a non-game context to change people's behavior (Bunchball, 2010). Gamification is viewed as an entertainment system based on technologies which combine wireless devices with communication forms (Lule, Omwansa, & Waema, 2012). In the past few years, gamification has been applied to numerous applications across diverse areas, such as information systems and social sciences. Gamification describes a number of design principles, processes and systems used to influence, engage and motivate individuals, groups and communities to drive behaviors (intentions) or generate the desired effect (Glover, 2013; Nicholson, 2012; Deterding et al., 2011).

Gamification for Marketing

Due to the rise and popularity of games in marketing activities, the new trend of gamification has attracted the attention of marketers. It is slowly being embedded in the minds of marketing executives, and the gamification market is expected to grow to \$2.8 billion in 2016 (Meloni & Gruener, 2012). In a 2013 survey, more than 70% of Forbes Global 2000 companies stated that they planned to use gamification for marketing and customer retention purposes (Park & Bae, 2014).

Due to improvements in the productivity and development of technologies, customers are becoming more and more selective in how and where they spend their money and time. Accordingly, companies are pressurized to find new ways to adapt their marketing strategies in order to attract customers' attention and keep them engaged in the process. The marketing area is highly innovative and sophisticated in deploying new ideas and phenomena, so many companies have used gamification in the marketing area for branding, including earning points, badges and free products through playing games or joining competitive activities. Companies can also take back control of the brand experience by engaging users, encouraging them to join

a community, driving active participation, sharing with friends outside the community and even recruiting friends to join the community (Meloni & Gruener, 2012). Therefore, a particularly compelling, dynamic and sustained gamification experience can be used to accomplish a variety of marketing goals. Pioneering participants include Coca-Cola, McDonalds, Nike and Sony.

In this paper, the authors refer to gamification as a system applying game design elements to a non-game context in order to generate playful experiences and influence users' attitude and/or behavior. Gamification can be perceived as a form of service packaging, where a core service is enhanced by a rule-based service system that provides feedback and interaction mechanisms to the user with the aim of facilitating and supporting the users' overall behavior or attitude change. In this case, the core service can also be a game that can be further gamified (Huotari & Hamari, 2011).

Motivations and Effects of gamification

Motivations of gamification

There are generally two types of human motivation: intrinsic and extrinsic. Extrinsic motivation involves doing something for its external rewards, like money, praise or other tangibles. Intrinsic motivation, on the other hand, drives behaviors that result in internal achievement or perception, like enjoyment or other positive feelings (Denny, 2014). Traditionally, it was believed that intrinsic motivation was more desirable if it resulted in a better learning outcome (Deci et al., 1999). As gamification marketing process is normally committed to instil products or brands information to users, it is a drive for participants to learn the information and further join or continue an action – in our case, engaging with gamification – because of the effects it has. Therefore, when people are intrinsically motivated, they have a

genuine desire for the activity itself and enjoy it tremendously. Two main intrinsic motivation theories guided the understanding of psychological aspects associated with participation or engagement behavior. The theory of 16 basic desires (Reiss, 2000) was employed to understand innate human desires along with foundations for collaborative engagement in business, providing utility for analyzing and predicting human behavior, which includes Order, Power, Independence, Curiosity, Acceptance, Saving, Idealism, Honor, Social Contact, Family, Status, Vengeance, Romance, Eating, Physical Activity, and Tranquility. In addition, Self-Determination Theory (SDT) (Deci & Ryne, 1985) framed a motivation model for understanding what and how human behavior is initiated and regulated. It recognizes social and environmental conditions that affect personal volition and engagement in activities. This theory also combines both psychological needs and cognition motivations describing needs for autonomy, competence, and relatedness. Hence, it is interesting to note that both of these theories modelled a close association between people's basic desire, social aspects and cognitive factors. In the context of gamification for marketing, if the social needs and cognitive motives are inherently intertwined with "play", users may be affected by those factors in behavior or attitude.

In addition, in game studies, it is evident that the motivational and emotional involvement during playing can be immense. The basic idea of gamification is to use this motivational power of games for other purposes not solely related to the entertaining purposes of the game itself. As some recent research illustrates, gamification systems are currently used with aims as diverse as influencing behavior or attitude, motivating for physical workout, fostering safe driving behavior, and enhancing learning in education (e.g. McGonigal, 2011). However, although gamification is often supposed to be an effective instrument to foster motivation, researches and investigations about the motivational pull of gamification are scarce, especially for marketing use.

According to previous game studies, scholars also found that social needs and emotional factors especially positive emotions can encourage people to play games. For example, in O'Neill, Wainess and Baker's (2005) study on the cognitive demands of playing games, social collaboration and communication were highlighted in achieving complex goals and making further progress in the game among all five factors. Koo (2009) found that enjoyment was an important motivator of online game playing. Based on that, although gamification is usually used for non-game context, which is different from games, it has adopted the applications of game elements, so social factors or enjoyment are likely to be the influencers in the context of gamification use.

Effects of gamification

As for the effects of gamification, according to previous research, the exposure to the brands placed in video games impacts on gamers' memory for the brands (Nelson, 2002; Grigorovici & Constantin, 2004). In addition, marketing or advertising interactions can be classified into two receptive contexts: passive interaction and active interaction. Most TV programs and movies are classified as passive-interactive media, which are relatively difficult to receive audiences' immediate responses. Video games are active-interactive media because players are able to have and are even required to have spontaneous interactions, responses and actions (Lee & Faber, 2007). People by nature are more impressed with and interested in active interaction rather than passive interaction (Acar, 2007). In this case, like games, gamification with multi-media can also have special characteristics of interactivity among users and sensory immersion, which makes it livelier and closer to audiences than other media. Also, it can be easier and more efficient for marketers to produce and place targeted brands in the process.

Compared with traditional marketing tools, gamification can be an innovative platform to incorporate branding messages. It is possible that gamification would represent an enjoyable way to enable consumers to accept branding messages (Xu, 2010). In addition, gamification for marketing can allow repetition of the branding message during the process. Compared with traditional marketing tools, gamification has no time or space limitation in branding products or services. Some other traditional media are generally for a one-time propagation so people have less chance to be exposed to the marketing message. In addition, gamification has the interactive entertainment just like games. With a strong interaction, gamification can enhance people's sense of belonging and identification to a brand. When interacting with the system or other participants in the gamification process, users will have various types of emotions and different experiences. This will directly or indirectly influence the evaluation of brand (Herrewijn & Poels, 2013). Finally, people enjoy competing, playing games and winning. In gamification, they can also compete and win rewards as well as revel in watching other people compete. People relish the process of participating in a competing activity with rewards, even if the prizes are small, symbolic or virtual. Gamification takes advantages of the game characteristics and applies them into marketing use. People's willingness to compete and win rewards during that process can be a catalyst to improving their loyalty to a brand, product or service.

Gamification has the potential to boost people's engagement, but few scholars have put it into practical research, especially in marketing context. A research about employees found that gamification can make the work process fun and that when workers combine games with work, they are more likely to be actively engaged and entertained. By the same token, the use of game-like designed training can also promote engaging work in a dynamic environment. Game-like designed training was taken as a common method of delivering training to teams or individuals (Fletcher & Tobias, 2006), showing that gamification have an increasingly

important role in engaging trainees. More and more companies are adopting gamification in the hope of driving improved business performance. In games, players aim to obtain in-game awards, such as rare items and virtual currency, or to gain admiration and recognition from other players, and those can represent extrinsic motivation (Lafrenière, et al., 2012).

Gamification is also likely to influence people's behavior and attitudes. According to Anderson and Dill (2000), games have considerable effects on players' behaviors and thoughts. Similarly, gamification, which has been used in different contexts, is argued to have positive effects on behavior and attitude in practice (Domínguez, et al., 2013; Rughinis, 2013). In addition, games and gamification are both goal-directed systems with rewards like points, levels or badges, which can lead to changes in beliefs, or efforts to attain the rewards or bonus, illustrated in the expectancy value theory (Shepperd, 2001). Therefore, users are likely to change their behavior or thoughts due to the reward systems in gamification process.

TAM

According to TAM and drawing from the theory of reasoned action (TRA) (Fishbein and Ajzen, 1975), one's actual use of a technology system is influenced directly or indirectly by the user's behavioral intentions, attitude, perceived usefulness and perceived ease of the system. Davis et al. (1989) found that perceived usefulness was the strongest predictor of an individual's intention to use an information technology or system. As the most important determinant in TAM that may influence system use, perceived usefulness is defined as "the degree to which a person believes that using a particular system would enhance his or her job performance" (Davis, et al., 1989, p. 985).

Perceived ease of use is beneficial for initial acceptance of an innovation and is essential for adoption and continued use (Davis, Bagozzi & Warshaw, 1989). It has been examined

extensively in understanding user acceptance of technology (Venkatesh, 2000). Similar to perceived usefulness, perceived ease of use has been empirically shown to be a critical component of the adoption process (e.g., Lin, Shih & Sher, 2007).

The model posits that actual usage is determined by users' behavioral intention to use, which in turn is influenced by their attitude and the belief of perceived usefulness. The behavioral intention construct as a proxy to predicting the actual usage is also a very important element in TAM.

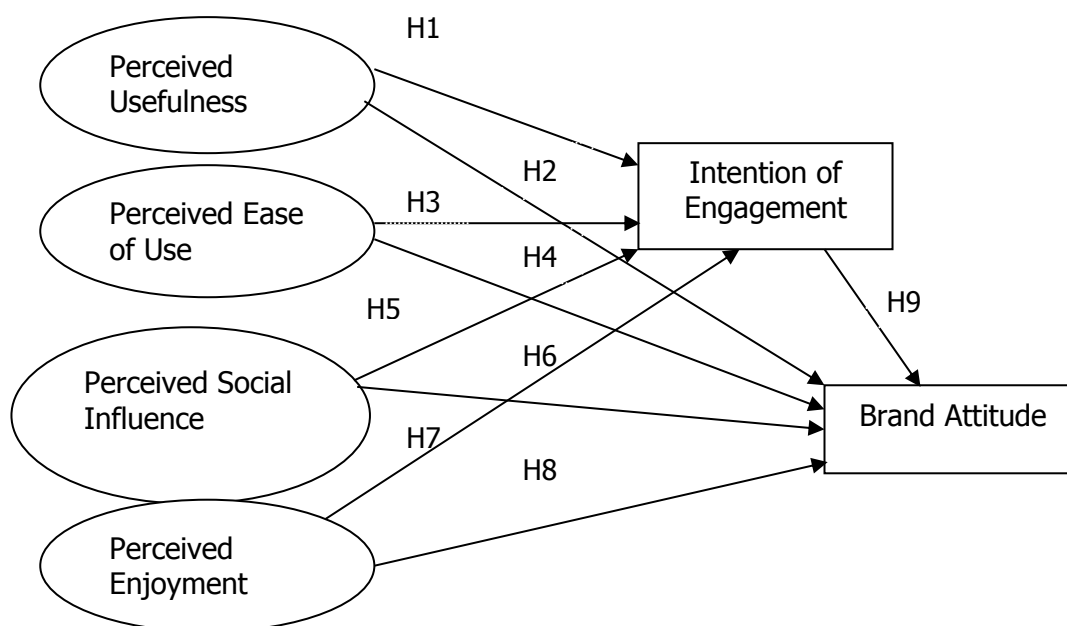
In the application of information systems, TAM has been successfully used by many researchers to predict behavioral intent towards the use of information technology (e.g. Ramayah & Jantan, 2003; Ramayah, Sarkawi & Lam, 2003; Legris, Ingham & Colletette, 2003). TAM has become the most influential theory in the information systems field. It has been asserted that TAM appears to be able to account for 40% to 50% of user acceptance (Park, 2009). Li (2014) maintains that TAM is a well-accepted theory in the context of IS acceptance that explains online consumer behaviour in the context of individual acceptance or rejection of a technology (Bradley, 2013).

However, some researchers (e.g. Davis, 1989, 1993, Benbasat and Barki, 2007; Li, 2014) have critiqued TAM for its incompleteness and called for extending TAM to specific contexts and including specific variables. We aim to respond to this call by examining a model that explains gamification in marketing while taking into account the role of social influence and perceived enjoyment along other factors in explaining consumers' intention to engage in the game and in turn their brand attitude.

Research model and hypotheses

The original TAM suggests that system acceptance is determined by perceived usefulness and perceived ease of use (Davis, 1985), but it was criticized by latter scholars due to the lack of specific factors under specific contexts which limited its explanatory and predictive power. In game studies, social aspects are proposed to predict players' attitudes and intentions, and enjoyment is considered the most important motivational aspect for gameplay (Hsu & Lu, 2007; Ghani & Deshpande, 1994; Li, 2014). In this research, social influence and enjoyment are included in the conceptual model as additional factors for the study of gamification use. Moreover, the relationships between attitude toward using and behaviour intention to use have already been validated by past research on TAM and TRA. Also, brand attitude was found to be closely related to purchase decision (Adis & Jun, 2013). In this study, unlike TAM or TRA, the research model is developed to explore the relationship between behaviour intention of engagement and brand attitude in order to examine the marketing benefits of gamification. Hence, the research model can be shown as below:

Figure 1: research model



This study aims to examine gamification in a marketing context. Hence, we propose a model with brand attitude as a dependant variable. The main objectives of this research are not only to investigate the antecedents of the behavioural intention to engage with gamification, but also to examine the relationship between behavioural intention of engagement and brand attitude. It is worth noting that studies based on TRA found strong support for using attitude to predict intentions (e.g. Sheppard, Hartwick & Warshaw, 1988), but this model uses intention to predict attitude. The intention and attitude in TRA studies are both towards the system, but while the intention is towards the game, the attitude in this study is towards the product brand which is embedded in the gamified marketing process.

Some studies have found a significant effect of perceived usefulness on intentions and attitudes (e.g. Davis et al., 1989; Venkatesh, 2000; Pikkarainen et al., 2004). However, Shroff, Dneen and Ng's (2011) found that perceived usefulness had no influence on consumers' behavioral intention to use an e-portfolio system. Another study (Li, 2014) argues that perceived usefulness is misleading and superfluous in a gamification context. However, the present study examines gamification in a marketing context. We maintain that gamification is a useful mechanism that brand managers can implement to enhance consumers' brand attitude. The association between the game and the brand is likely to create a useful branding mechanism. We argue that consumers who perceive the game as being useful in the recognition/familiarity of the brand are more likely to engage in the gamified process. Hence, we hypothesize:

H1. Perceived usefulness will have a positive effect on customers' intention to engage in gamification.

Marketing activities like advertising, which engage customers with gamified activities, have been found to be useful tools to raise brand awareness, change customers' brand attitude and

finally affect customers' intention to purchase (Mackenzie et al., 1986; Tsai et al., 2007). Perceived usefulness from the gamification marketing process can also affect people's brand attitude. Perceived usefulness is also one of two basic determinants to predict people's attitude towards a new system or technology, and people's attitude towards advertising is significantly related to people's attitude towards the brand (Biehal, Stephens & Curlo, 1992; Sallam & Algammash, 2016). Therefore, we infer that:

H2. Perceived usefulness will have a positive effect on customers' brand attitude.

Research in information systems maintain that the easier users perceive a new technology, the more likely they would be to adopt that technology (Teo et al., 1999). Perceived ease of use is also considered to be an important factor that influences people's behavioral intention or attitude. It can be concluded from previous studies that the main feature of perceived ease of use is "simplicity", whether in comprehension, interaction, accessibility or operation (Ndubisi & Jantan, 2003; Rogers, 1995). It has been found in previous researches that perceived ease of use can influence behavior or attitude in information technology adoption (e.g. Rodrigues, Costa & Oliveira, 2013; Hsu & Lu, 2004). Ramayah et al. (2003) found that perceived ease of use has a significant impact on intention to use internet banking, which corroborates the findings by Ramayah et al. (2002), Adams et al. (1992) and Davis et al. (1989). Huang, Linn and Chuang (2007) argue that perceived ease of use is one of two fundamental factors for predicting user acceptance. Despite this widespread agreement on the impact of ease of use of technology on attitudes/behaviours, Benbasat & Barki (2007) and Li (2014) suggest that ease of use is not relevant in a gamification context. We challenge this view and argue that an increasing number of companies are using gamification as a technological platform to influence their consumers' attitudes and behaviors. These games vary in their level of accessibility,

simplicity, and degree of ease of comprehension and interaction. Therefore, we maintain that consumers will be more likely to engage with games which are more accessible, easier to comprehend and interact with. In this study, we argue that perceived ease of use of games influences consumers' intention to engage and should be examined. Therefore we propose the following:

H3. Perceived ease of use will have a positive effect on customers' intention to engage in gamification.

As stated above, people's attitude can be influenced by relevant experiences, emotions and reflections from a certain process. In the gamification process, perceived ease of use may influence people's attitude in a similar way to perceived usefulness. Perceived ease of use represents the degree to which adopting a new technology or system is free of effort (Davis et al., 1989). If the new technology or system is simpler to use, people will feel more satisfied and be more likely to adopt it, and thus create a positive impression of that new system or technology. Furthermore, when compared with people who are in a negative state of mind, people who are in a positive state of mind are proven to have a more positive brand attitude and a greater intention to try the advertised products (Owolabi, 2009). From this perspective, a higher degree of perceived ease of use is likely to cause a more favourable brand attitude. A study of smartphone brands in Malaysia found that the relationship between customer satisfaction and brand attitude is positive and significant (Ghorban, 2012). Satisfaction was stated to be an index of a system use (website) (Tu, Fang & Lin, 2010). Satisfaction may shape the attitude towards a system or technology use. It has also been found that perceived ease of use has a significant influence on customer satisfaction. It is thus reasonable to suggest that perceived ease of use is related to brand attitude. Therefore, we hypothesize that:

H4. Perceived ease of use will have a positive effect on customers' brand attitude.

Social influence can have a significant impact on behaviors of users in the ICT context (Venkatesh & Davis, 2000; Straub et al., 1997; Hsu & Lu, 2007). It is argued that behavioral intentions could be determined by subjective norm (Fishbein & Ajzen, 1975), which is often defined as a person's perception that most people who are important to him think he should or should not perform the behavior in question (Venkatesh & Davis, 2000). Oliver et al. (1985) proposed the concept of "critical mass" to examine subjective norm for social influence research. This refers to the idea that some threshold of participants or actions have to be crossed before a social movement explodes into being. That concept can explain the effect of social influence in a collective environment and the acceptance of a groupware application. It is assumed that people can perform a specific behavior if they believe that one or more of the important referents think they should. Support is also provided by the IDT suggesting that user adoption decisions are influenced by a social system beyond an individual's decision, and by Kelman's (1958) study on identification (i.e., when an individual accepts influence because he/she wants to establish or maintain a satisfying self-defining relationship to another person or group) and internalisation (i.e., when an individual accepts influence because it is congruent with her value system).

Research into the effect of social influence on behavioral intentions have produced mixed results. For instance, Mathieson (1991) found no significant effect of subjective norm on intention, whereas Taylor and Todd (1995) found a significant effect. So the extent to which social influence can influence consumers' intention of engagement remains an important issue to be further explored.

The increased use of social media has brought about the rise of online groups or communities with shared norms, values and interests (Laroche et al., 2012). Those virtual groups or communities formed for sharing information may strengthen and intensify the “critical mass” concept of Kelman (1958) in the social media environment. Given that most of the gamification processes nowadays are based on social media, it is likely that perceived social influence has an effect on customers’ intention. The following hypothesis is therefore proposed:

H5. Perceived social influence will have a positive effect on customers’ intention to engage in gamification.

Social influence is often considered an essential factor in bringing about attitude change, and it is also an important motivation for game players. Attitude change can be seen as a pervasive influence on judgements from the social environment. People often reinterpret messages online with the ideology of important social groups and close people around. In Asch’s (1952) study, the behaviors and beliefs guiding an individual are either an endorsement of his (her) group, and therefore a bond of social community, or an expression of conflict with it. Attitudes can be formed by reference from other people. In marketing, a number of sociocultural forces such as parents, peers, school, shopping skills and mass media, can be major influences during the process of customers’ socialisation (Gunter & Furnham, 1998). Kamaruddin and Moklis (2003) maintain the importance of social influence on brand attitudes and purchasing decisions of young people. In the gaming process, people can often compete or cooperate with people and thus perceive social influence. In the context of gamified marketing, perceived social influence has the potential to influence people’s attitude towards the new system and further influence people’s brand attitude. Therefore, we hypothesise that:

H6. Perceived social influence will have a positive effect on customers’ brand attitude.

We posit that the attitude or behavioral intention of a customer towards a technology, system or service may result not only from functional usefulness, the effort made for usage or perceived social influence, but also from perceived enjoyment. If users do not enjoy engaging in the gamified marketing process, they are unlikely to get involved in it again. Perceived enjoyment may explain people's intentions or attitudes (Childers et al., 2001; Yannakakis & Hallam, 2007). Moreover, it has been found that one important motive for playing games is to seek pleasure; players who perceive enjoyment in games (gamification) are more likely to be motivated to play more (Huang & Cappel, 2005; Kim et al., 2002). Thus, we argue that the user will be more motivated to do or repeat an enjoyable activity, compared to a similar activity which is not enjoyable.

Prior research also suggests that enjoyment can indirectly impact behavioral intention through other variables. For example, Venkatesh (2000) found that enjoyment significantly impacts behavioral intention to use information technology through perceived ease of use. Lee et al. (2005) also found that enjoyment not only directly impacts behavioral intention, but also indirectly influences it through attitude. Moreover, scholars have argued that hedonic feelings play a role in consumption decisions (Hartman et al., 2006). Some studies also support the claims that perceived enjoyment has no direct influence on intention to use (Venkatesh et al., 2003; Yi & Hwang, 2003). The authors aim to add to this debate and hypothesize the following:

H7. Perceived enjoyment will have a positive effect on customers' intention to engage in gamification.

Enjoyment is an important source of value for gamers, and thus they are more willing to persist in a behavior with enjoyment aspects (Deci et al., 1999). However, the impact of enjoyment on brand attitude has not been examined yet in the context of gamification to the best knowledge of the authors. Research in electronic commerce have so far explored the role of enjoyment in

instant messaging (Li et al., 2005) and online shopping (Koufaris, 2002). Ducoffe (1996) found a significant positive relationship between entertainment and advertising value in traditional media and in web advertising. A study by Taylor et al. (2011) proposed that SNS users' perceptions from entertaining advertisements would positively influence their attitudes towards advertising appearing on these SNSs. This was also supported by Gao and Koufaris (2006) and Brackett and Carr (2001), who argue that perceived entertainment has been identified as one of the determinant influences on consumers' attitudes towards advertising in electronic commerce. In a study investigating students' acceptance of an internet-based learning medium, Lee et al. (2005) found that enjoyment not only directly impacts behavioral intention, but also indirectly influences it through attitude.

Norris and Colman (1993), Gullen (1993) and Lloyd and Clandy (1991) proposed that enjoyment or entertainment properties of an advertisement may affect people's attitude towards that advertisement. Compared with other activities such as online shopping and information system uses, gamification processes (like games) will be more experience oriented. Thus the participants' attitude is more likely to be motivated by intrinsic motivations than by playing online games. Perceived enjoyment from a new marketing system is closely related to the attitude towards that system, and people's attitude towards that system is also possibly related to their attitude towards the brand embedded in that system. We therefore hypothesise that:

H8. Perceived enjoyment will have a positive effect on customers' brand attitude.

Past studies have indicated that there is a link between attitude and behavioral intention, although the nature of the link is not always clear (Spears & Singh, 2004). Generally, researchers have focused on the influence of attitude on behavioral intention, and not the other way round. Sukpanich and Chen (1999) found that intention was one of the three constructs to

affect web advertising attitudes, the other two being awareness and preference. Similarly, Kotler (2004) showed the close relationship between behavioral intention and attitude in his definition of an attitude, which is “a person’s enduring favourable or unfavourable evaluations, emotional feelings and action inclination toward some idea or object”. The strong emotional ties that gamification creates between the customers and the brand during marketing activities have also been recognised (Norris & Colman, 1993). Therefore we posit that in a gamified marketing context, the intention to engage with the game is likely to drive more favourable attitude towards the gamified brand. Hence, the following hypothesis is proposed:

H9. Customers’ intention to engage in gamification will have a positive influence on their attitude towards the brand.

Methods

Research context

We tested the hypotheses in the context of a gamified brand. This study adopted a largely quantitative approach, informed by exploratory qualitative research. A review of the literature identified numerous scales that had been developed, tested and validated to measure the constructs that form the focal points for this research – perceived usefulness, perceived ease of use, perceived social influence, perceived enjoyment, intention of engagement and brand attitude. While it is documented that a phenomenological approach could have revealed deeper insights linking these phenomena, the problem of necessarily small sample sizes would have limited the generalisability of such an approach. The authors believe that our approach has validity because scales to measure the focal constructs have been previously validated. This study makes a contribution to knowledge by identifying new linkages between the

aforementioned constructs and testing hypotheses specifically in the context of a gamified brand.

Exploratory Qualitative research

Given the novelty of investigating gamification in the marketing context, an initial exploratory qualitative study using two separate focus groups was undertaken. Using a purposive sampling method, the focus groups' discussions on the motivations and effects of playing games were analysed using NVIVO software. The analysis followed standard interpretive practice. We started the analysis by identifying open codes followed by axial codes that helped us elaborate some of the key themes (Strauss & Corbin, 2008). From this exploratory analysis, it was clear that perceived enjoyment was recognised as a key motivation of engaging with brand games. The results of the qualitative study combined with existing literature were used to advance the conceptual development and hypotheses. In addition, the results of the qualitative study helped refine the measurement scales of the quantitative stage.

Sample and Data Collection

University students in the UK and China have been chosen as the main sampling participants. College students are often considered a bellwether of internet use, but the internet is not the only technology they have incorporated into everyday life. Thanks to a plethora of technologies (video game consoles, computers, handheld devices, and the internet), a range of entertainment options is at their disposal – a range that is much wider than was available to their predecessors. Furthermore, today's college students are using technologies like mobile phones, MP3 players

and other devices to entertain themselves wherever they may be. Hence, college students are a suitable target for this study.

A sample of students was drawn from one British university and one Chinese University through email invitation from December 2014 to March 2015. During that period, about 1500 students with a valid e-mail address were invited to participate in a gamification activity which included playing a game (Oreo: Twist, Lick, Dunk) and completing a survey relating to the gamification marketing activity of Oreo company.

Oreo: Twist, Lick, Dunk is the official game of the popular chocolate cookie brand. As suggested in the title, the game makes you twist, lick and dunk virtual Oreo cookies. First, swipe through the cookies to “twist” them. Second, swipe through them again to “lick” them and combine them into one big cookie. And then, drag the big cookie into the glass of milk to “dunk” it. Finally, the players can see the score and ranking on the leader board. Players can download and play the ordinary version for free, and it is available for iOS and Android devices, which made it the best performing branded game ever launched, ranking number one overall in 12 countries and top 10 overall in 36 countries. This game is popular and easy to pick up. Also, it enables players to unlock the Oreo cookie varieties featured in the game.

Research Procedure

The research mimicked a gamification marketing activity and was made as easy as possible to conduct for the researcher. During the research part, the participants were in pairs. Both of the subjects in each pair first watched a guide video about how to play the game Oreo: Twist, Lick, Dunk. Then, all the participants downloaded the game from the app store to the mobile devices. They had five minutes to learn and practice playing the game. The participants then played the game and got a score in the local and/or worldwide ranking leader board. After comparing their

scores in pairs, the winner of each pair got a free pack of Oreo cookie. After playing the game and getting the result, the participants filled up the questionnaire. The time for each research took about 20-30 minutes.

During data collection period, 323 responses were collected (a response rate of 21.5%). Among all the collected data, 320 were fully completed responses and 3 were incomplete with 1 answer missing respectively. The missing data have been calculated by SPSS regress substitution. At last, all the collected data (323) were included in the analysis. All the participants are chosen from university students, so 300 out of 323 were ranging from 19 to 39 years old, 14 were under 19 years old and 9 were above 39 years old. Since the data were collected from Britain and China, the participants were mainly from Europe (132) and Asia (185). The participants were chosen at random when invited, so there were several international students have been included in the research (America: 1, Arica: 5).The other demographic profile are shown in table 1.

Table 1: demographic profile of respondents

	Demographic Profile	Frequency	Percentage %
Gender	Male	105	32.5
	Female	218	67.5
	Total	323	100
Education	Bachelor and Under	183	56.6
	Master	103	31.9
	PhD	37	11.5
	Total	323	100
Faculty	Engineering	52	16.1
	Science	150	46.4
	Humanities and Arts	114	35.3
	Other	7	2.2
	Total	323	100

Measurement Development

Previously developed and validated measurement scales were adapted to the context of gamification. All constructs used 5-point Likert-type scales anchored at “Strongly disagree” (1) to “Strongly Agree” (5).

Perceived usefulness was measured with four items adapted from Hsu and Lu (2004), e.g. ‘It effectively made me think about the brand’, ‘I found it is useful in the branding of brand X’.

Perceived ease of use was measured with five items also adapted from Hsu and Lu (2004), e.g. ‘It was easy for me to learn how to play that game and compete with another person’, ‘My interaction with playing the game and the competition was clear and understandable’.

Perceived social influence was measured with six items adapted from Hsu and Lu (2004), e.g. ‘If my friends like to join the game competition, I will do it as well.’, ‘If people I know think it is fun to win the game competition and get the prize, I will do it.’ Perceived enjoyment was measured with 5 items based on Wu and Liu (2004).

Intention of engagement was conceptualised as the degree to which a person has formulated conscious plans to perform or not perform some specified future behavior relating to the game.

The intention of engagement was measured with three items based on Park (2009) and Ahn, Ryu and Han (2007), e.g. ‘I intend to join this activity again’ and ‘I intend to play that game frequently in the future’.

Brand attitude was captured with nine items from Yalcin and Demir (2009) and Park (2009), e.g. 'It makes me feel more personally connected to the Oreo brand' and 'It makes me have the intention to use other Oreo services or products'.

Results

The hypothesized effects were tested using the two-step approach of structural equation modelling (SEM) using AMOS (21.0). In a first step, confirmatory factor analysis (CFA) was employed to examine the reliability and validity of the scales employed in this study (Gerbing & Hamilton, 1996), followed in the 2nd step by evaluation of the structural model.

The measurement model was assessed by a range of commonly used indicators. The overall fit of the final model was good by conventional standards (Chi-Square is 459.2 with 287 degrees of freedom ($p < .000$), Chi-Square/df=1.6, comparative fit index (CFI) =.96, Tucker-Lewis index (TLI) =.95, and root mean square error approximation (RMSEA) =.043. Convergent and discriminant validity was assessed for the final multi-item constructs. All factor loading estimates measuring the same constructs for the final CFA model are highly significant ($p \leq .001$) showing that all indicators effectively measure their corresponding construct and support convergent validity.

Table 2: Means, standard deviations, composite reliabilities, average variance extracted and correlations among latent constructs

Construct	No	Mean	SD	CR	AVE	1	2	3	4	5	6
1. Perceived usefulness	3	3.23	1.00	.76	.62	.79					
2. Perceived ease of use	3	3.34	1.06	.74	.59	.43	.77				
3. Perceived social influence	5	3.38	1.06	.88	.83	.26	.16	.91			
4. Perceived enjoyment	4	3.44	1.02	.80	.67	.62	.30	.41	.82		
5. Intention of engagement	3	3.64	1.25	.86	.60	.48	.17	.23	.64	.77	
6. Brand attitude	8	3.54	1.04	.87	.76	.47	.18	.33	.55	.69	.87

Note: SD=Standard Deviation, CR = Composite reliability, Values in the diagonal represent the square root average variance extracted

Furthermore, the standardized loadings are all above .5 with the majority being above .7. The reliability of the constructs was assessed using the measure of construct reliability (CR), which is computed from the squared sum of factor loadings and the sum of error variance terms (Hair et al., 2006). All composite reliabilities exceeded .7 demonstrating adequate reliability. Discriminant validity was examined by comparing the square root of the variance extracted measures with the inter-construct correlations associated with that factor. All square root variance-extracted estimates are greater than the corresponding inter-construct correlation estimates, thus confirming discriminant validity. Table 2 shows the mean, standard deviations, reliability estimates, average variance extracted and the correlation coefficients for the latent constructs of the study.

Hypothesized effects

The structural model also showed acceptable fit (Chi-Square=469.00, Chi-Square/df=1.66, df=283, CFI=.95, TLI=.95, RMSEA=.045). The model explains 41.2% of variation in intention of engagement and 60.7% in brand attitude.

The results show that perceived usefulness had a positive significant influence on both customers' intention to engage in gamification and their brand attitude ($\beta=.148$, $p<.000$ and $\beta=.102$, $p<.000$), hence supporting H1 and H2. H3 and H4 were not confirmed as perceived ease of use was not found to be a predictor to intention of engagement or brand attitude. While no support was found to the proposed effect of perceived social influence on intention of engagement H5, higher levels of perceived social influence were associated with more positive brand attitude ($\beta=.159$, $p<.005$), thus confirming H6. Perceived enjoyment had a positive significant effect on both intention of engagement ($\beta=.571$, $p<.000$) and brand attitude ($\beta=.100$, $p<.000$), demonstrating support for H7 and H8. Intention of engagement led to more positive brand attitude ($\beta=.624$, $p<.000$), confirming H9. Table 3 provides an overview of the structural path parameter estimates.

Common Method Variance

Harman's single test factor has been used to check for potential common method bias (Chang, Witteloostuijn, & Eden, 2010). The constructs were loaded into the exploratory factor analysis. The test result shows that there is no single factor explaining a disproportionately large portion of variance. Thus, no "general" factor is apparent in the data. The correlation matrix is also examined. The matrix revealed the absence of highly correlated variables and therefore common method bias is unlikely to be a concern with this data (Podsakoff et al., 2003).

Table 3: Structural model estimates

Hypotheses	Hypothesized paths	Std. path coeff.	t-value	p-value	Result
H1	PU→ IOE	.148	1.608	.000	Support
H2	PU →BA	.102	1.296	.000	Support
H3	PEU→ IOE	-.059	-.874	.382	No Support
H4	PEU →BA	-.051	-.862	.195	No Support
H5	PSI→ IOE	-.030	-.477	.633	No Support
H6	PSI→BA	.159	2.889	.004	Support
H7	PE→IOE	.571	5.617	.000	Support
H8	PE→BA	.100	1.090	.000	Support
H9	IOE→BA	.624	6.918	.000	Support

Discussion

While perceived usefulness was found to positively influence people's intention of engagement in the gamified branding process, perceived ease of use is not significantly relation to the intention of engagement. Although this result failed to support H3, it was not totally unexpected because most prior TAM research has found that perceived usefulness has a greater influence on the intention of engagement when compared to perceived ease of use (e.g. Smith, 2008; Savitskie et al., 2007; Davis et al., 1989). Similarly, this study's findings suggest that perceived usefulness and not ease of use positively influences brand attitudes which is consistent with other studies (Koury & Yang, 2010; Hosseini et al., 2011). It can be inferred that although perceived ease of use has the potential to influence people's attitude or behavior towards a new system or technology in the beginning, it may not influence their attitude or behavior for a long

time (engagement). It is also possible that because of the advances in information technology, perceived ease of use (i.e. the degree to which a person believes that using a particular system will be free of effort) is not a concern for most people, especially for young people (the target participants of this research are university students).

Consistent with Mathieson (1991), perceived social influence was not found to positively influence people's intention of engagement in the gamified marketing process. This finding adds to the debate in the literature characterised by conflicting results as to the impact of social influence on behavioral intentions. This study has found that perceived social influence is closely related to brand attitude in the context of gamified marketing. This is in line with Hamari and Koivisto (2013) who pointed out that social aspects play an important role in gamification such as game playing, and found that social factors such as social influence contribute to attitudes and use intentions towards gamification services.

Perceived enjoyment was found to be the strongest predictor of intention to engage in the gamification process which is not surprising given the gamification context. This is consistent with Huang & Cappel (2005) and Kim et al. (2002) who argue that fun or entertainment is the most important motivation for game players, and most people aim to seek pleasure through playing games. In addition, this study found perceived enjoyment to significantly influence brand attitude in the gamification process for marketing purposes. This is consistent with Wise et al. (2008) who studied advergames and found that brand attitude was significantly affected by game enjoyment.

While behavioral intention was maintained to be determined by attitude in past research, our study results found positive effect of the intention of engagement on brand attitude in the context of gamification marketing.

Summary and implications

This study contributes to the marketing literature by providing an extension to the TAM model in the context of gamification used by marketers. In line with past research, the results confirmed that TAM is a valid theory not only in the context of information system adoption, but also in the evaluation of a marketing system. In addition, based on the extended model, some positive effects of gamification have been found for marketing purposes in this research. In particular, the intention to engage with a gamified brand is likely to lead to positive attitudes towards that brand. In addition, the study contributes to the TAM literature by shedding the light on the importance of enjoyment in predicting the intention of engagement. Marketers or game designers should pay more attention to the elements that can bring about enjoyable perception or experience when playing a game. For example, as in game design, the enjoyable elements of the gamification process can be competition with other participants, interesting interactivity or the reward system.

The results of this study provide evidence about the effects of gamification in practice as a foundation for further application of gamification in different areas. Also, it may serve as a guide for gamification planners or designers regarding what factors are important for participants in influencing their behaviors and attitudes, and it makes a contribution to academic research on the extensions of the original technology acceptance model and testify to the application of TAM in different areas. Finally, examining the relationship between intention of engagement with the gamification marketing process and the attitude towards the particular brand in that process may potentially enable marketers to increase participants' intention when they carry out marketing activities and also theoretically fill the knowledge gap about the relationship between intention of engagement and brand attitude.

Gamification is a comparatively new term, and there are many directions that gamification use can be further studied. The established model in this research might be used in future as a basic model that can be extended. Future research may focus on the element of design of games and what design elements may make a game more enjoyable and/or more useful in the gamification process. This will have considerable managerial implications for companies that wish to achieve marketing benefits from gamification. Some external factors could be included in the model. For example, technology elements may influence the prediction of people's intention of engagement and brand attitude based on existing perceptions, especially for the gamification use with internet. Also, researchers can further explore potential moderating effects of previous experiences (positive/negative) or social value orientation (proself/prosocial) on the relationships in this study. In addition, the applications of gamification to different areas apart from marketing area can also be studied in more depth. Overall, the practical use of gamification for many different purposes and in different ways in future should be encouraged, especially in marketing area, given the impact gamification can have on consumers' attitudes and behaviors.

References

- Acar, A. (2007). Testing the effects of incidental advertising exposure in online gaming environments. *J. Interact. Advert.* 8, 45-56.
- Adams, D.A., Nelson, R.R. & Todd, P.A. (1992). Perceived Usefulness, Ease of Use, and Usage of Information Technology: A Replication. *MIS Quarterly*, 16(2), 227-247.
- Ahn, T., Ryu, S. & Han, I. (2007). The impact of Web quality and playfulness on user acceptance of online retailing. *Information & Management*, 44, 263-275.
- Anderson, C.A. & Dill, K.E. (2000). Video games and aggressive thoughts, feelings, and behavior in the laboratory and in life. *Journal of Personality and Social Psychology*, 78(4), 772-790.
- Asch S.E. (1952). Effects of group pressure upon the modification and distortion of judgment. In: H. Guetzkow (ed) *Groups, Leadership and Men*. Pittsburgh, PA: Carnegie Press.
- Benbasat, I., & Barki, H. (2007). Quo vadis TAM?. *Journal of the association for information systems*, 8(4), 7.
- Biehal, G., Stephens, D., & Curlo, E. (1992). Attitude toward the Ad and brand choice. *Journal of Advertising*, 11 (3), 19-36.
- Brackett, L. & Carr, B. N. (2001). Cyberspace advertising vs. other media: Consumer vs. mature student attitudes. *Journal of Advertising Research*. 41(5), 23-32.
- Burk, B. (2013). The gamification of business, Available from: <http://www.forbes.com/sites/gartnergroup/2013/01/21/the-gamification-of-business/>
- Chang, S.J., Van Witteloostuijn, A. and Eden, L., 2010. From the editors: Common method variance in international business research. *Journal of International Business Studies*, 41(2), pp.178-184.

- Childers, T.L., Carr, C.L., Peck, J. & Carson, S. (2001). Hedonic and utilitarian motivations for online retail shopping behavior, *Journal of Retailing*. 77, 511-536.
- Corbin, J., & Strauss, A. (2008). The basics of qualitative research (3rd ed.) Los Angeles, CA: Sage.
- Davis, F.D. (1993). User acceptance of information technology: system characteristics, user perceptions and behavioral impacts, *International Journal of Man-Machine Studies*. 38 (3), 475-487.
- Davis, F.D., Bagozzi, R. & Warshaw, P. (1989). User acceptance of computer technology: a comparison of two theoretical models. *Management Science*, 35 (8), 982-1003.
- Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*, New York: Plenum Press.
- Deci, E. L., Koestelr, R. & Ryan, R. M. (1999). A meta-analytic review of experiments examining the effects of extrinsic rewards on intrinsic motivation. *Psychological Bulletin*, 125, 627-668.
- Denny, J. (2014). Gamification: Intrinsic Motivation for Lasting Engagement, *eLearning Industry*, available at: <https://elearningindustry.com/gamification-intrinsic-motivation-lasting-engagement>
- Deterding, S. (2011). Gamification: Designing for Motivation. *Interactions*, 7, 14-17
- Deterding, S., Dixon, D., Khaled, R. & Nacke, L. (2011). From game design elements to gamefulness: Defining "Gamification", In: Proceedings from *MindTrek '11*. Tampere, September 28-30, Finland: ACM.
- Domínguez, A., Saenz-de-Navarette, J., de-Marcos, L., Fernández-Sanz, L., Pagés, C. & MartínezHerráiz, J. (2013). Gamifying learning experiences: Practical implications and outcomes. *Computers and Education*, 63(1), 380-392.

- Ducoffe, R. H. (1996). How Consumers Assess the Value of Advertising. *Journal of Current Issues and Research in Advertising*. 17, 1-18.
- Fishbein, M. & Ajzen, I. (1975). *Belief, Attitude, Intention and Behavior: An Introduction to Theory and Research*, Reading, MA: Addison- Wesley
- Fletcher, J.D. & Tobias, S. (2006). Expanding opportunities through on-demand learning. In T. L. Good (Ed.) *21st Century education: A reference handbook*, New York: Sage
- Gao, Y., & Koufaris, M. (2006). Perceptual antecedents of user attitude in electronic commerce. *The DATA BASE for Advances in Information Systems*, 37(2&3), 42-50.
- Gartner Research (2011). Gartner says by 2015, more than 50 percent of organizations that manage innovation processes will gamify those processes, Available at: www.gartner.com/newsroom/id/1629214
- Gartner Research, (2012). Gamification 2020: What is the future of gamification? Available at: <https://www.gartner.com/doc/2226015/gamification--future-gamification>
- Gerbing, D. W. and Hamilton, J. G. (1996). Viability of exploratory factor analysis as a precursor to confirmatory factor analysis, *Structural Equation Modeling*, 3, 62-72.
- Glover, I. (2013). Play as you learn: Gamification as a technique for motivating learners. *Proceedings of World Conference on Educational Multimedia, Hypermedia and Telecommunications 2013* (pp. 1999-2008). Chesapeake, VA: Association for the Advancement of Computing in Education.
- Grigorovici, D. & Constantin, C. (2004). Experiencing interactive advertising beyond rich media: impacts of ad type and presence on brand effectiveness in 3D gaming immersive virtual environments, *Journal of Interactive Advertising*, 5 (Fall), 22-36.
- Gullen, P. (1993). Measuring the quality of television viewing and its link with advertising effectiveness. Paper presented at the *Marketing Week/Carat UK Value of Quality Television Seminar*, London.

- Gunter, B. & Furnham, A. (1998). *Children as Consumers: A Psychological Analysis of the Young People's Market*. London, UK: Routledge
- Hair, J., Black, W., Babin, B., Anderson, R., & Tatham, R. (2006). *Multivariate data analysis* (6th ed.). N.J.: Pearson Prentice Hall.
- Hamari, J. & Koivisto, J. (2013). Social motivations to use gamification: an empirical study of gamifying exercise. In *Proceedings of the 21st European Conference on Information Systems*, June 5–8, Utrecht, Netherlands
- Hamari, J., Koivisto, J., & Sarsa, H. (2014). Does Gamification Work? A Literature Review of Empirical Studies on Gamification, In *Proceedings of System Sciences (HICSS), 47th Hawaii International Conference* (pp. 3025–3034), January 6-9, Hawaii
- Hartman, J.B., Shim, S. Barber, B. & O'brien, M. (2006). Adolescents' utilitarian and hedonic web-consumption behavior: Hierarchical influence of personal values and innovativeness, *Psychology & Marketing*, 23, 813-839.
- Herrewijn, L. & Poels, K. (2013) Putting Brands into Play: How Game Difficulty and Player Experiences Influence the Effectiveness of In-Game Advertising. *International Journal of Advertising*, 32, 17-44.
- Hosseini, S.F., Alakbarli, F., Ghabili, K., Shoja, M.M. & Hakim, E.J. (2011). *Persian physician and jurist*, 284, 647-650.
- Hsu, C. & Lu, H. (2004). Why do people play on-line games? An extended TAM with social influences and flow experience. *Information & Management*, 41, 853-868.
- Hsu, C. & Lu, H. (2007). Consumer behavior in online game community: A motivational factor perspective. *Computers in Human Behavior*, 23(3), 1642-1659.
- Huang, J.H., Lin, Y.R. & Chuang, S.T. (2007). Elucidating user behavior of mobile learning. *The Electronic Library*, 25(5), 585-98.

- Huang, Z. & Cappel, J.J. (2005). Assessment of a Web-Based Learning Game in an Information Systems Course, *Journal of Computer Information Systems*, 45(4), 42-50.
- Huotari, K. & Hamari, J. (2011). "Gamification" from the perspective of service marketing, *CHI 2011*, May 7–12
- Kamaruddin, A. R. & Mokhlis, S., (2003). Consumer socialization, social structural factors and decision making styles, a case study of adolescents in Malaysia. *International Journal of Consumer Studies*, 27(2), 145-156.
- Kelman, H. C. (1958). Compliance, identification and internalization: Three processes of attitude change. *J. Conflict Resolution*, 2, 51-60.
- Kim, K.H., Park, J.Y., Kim, D.Y., Moon, H.I. & Chun, H.C. (2002). E-Lifestyle and Motives to Use Online Games. *Irish Marketing Review*, 15 (2), 71-77.
- Koo, D.M. (2009). The moderating role of locus of control on the links between experiential motives and intention to play online games. *Computers in Human Behavior*, 25, 466-474.
- Kotler, P. (2004), *Marketing Management* (7th Ed), India: Pearson Education.
- Koufaris, M. (2002). Applying the technology acceptance model and flow theory to on-line consumer behavior. *Information System Research*, 13 (2), 205-223.
- Lafrenière, M.K., Verner-filion, J. & Vallerand, R.J. (2012). Development and validation of the Gaming Motivation Scale (GAMS), *Personality and Individual Differences*, 53, 827-831.
- Laroche, M., Habibi, M. R., Richard, M.O. & Sankaranarayanan, R. (2012). The effects of social media based brand communities on brand community markers, value creation practices, brand trust and brand loyalty. *Computers in Human Behavior*, 28(5), 1755-1767.
- Lee, M. & Faber R. J. (2007). Effects of product placement in on-line games on brand memory. A perspective of the limited-capacity model of attention. *J. Advert.* 36, 75-90.

- Lee, M.K.O., Cheung, C.M.K., & Chen, Z. (2005). Acceptance of Internet-based learning medium: The role of extrinsic and intrinsic motivation. *Information & Management*, 42, 1095-1104.
- Legris, P., Ingham, J. & Colletette, P. (2003). Why do people use information technology? A critical review of the technology acceptance model. *Information & Management*, 40(3), 191-204.
- Li, C. (2014). Evaluation of a theoretical model for gamification in workplace is context (Doctoral dissertation, University of British Columbia).
- Li, D., Chau, P.Y.K. & Lou, H. (2005). Understanding Individual Adoption of Instant Messaging: An Empirical Investigation. *Journal of the Association for Information Systems*, 6(4), 102-129.
- Lin, C., Shih, H. & Sher, P.J. (2007). Integrating Technology Readiness into Technology Acceptance: The TRAM Model. *Psychology & Marketing*, 24(7), 641-657.
- Lloyd, D. W., & Clancy, K. J. (1991). CPMs versus CPMIs: Implications for media planning, *Journal of Advertising Research*, 31(4), 34-44.
- Lule I., Omwansa T., Waema T. (2012). Application of Technology Acceptance Model (TAM) in MBanking Adoption in Kenya. *International journal of computing and ICT research*. pp.31-43
- MacKenzie, S., Lutz., R. & Belch, G. (1986). The Role of Attitude toward the Ad as a Mediator of Advertising Effectiveness: A Test of Competing Explanations. *Journal of marketing research*, 23(2), 130-143.
- Mathieson, K. (1991). Predicting user intentions: comparing the technology acceptance model with the theory of planned behavior, *Information Systems Research*, 2 (3), 173-191.
- McGonigal, J. 2011. *Reality Is Broken: Why Games Make Us Better and How They Can Change the World*. New York: Penguin Books

- Meloni, W., & Gruener, W.M.R. (2012). Gamification in 2012, Available at: <http://goo.gl/75Ph5>
- Mick, D.G. & Fournier, S. (1998). Paradoxes of Technology: Consumer Cognizance, Emotions, and Coping Strategies, *Journal of Consumer Research*, 25, 123-143.
- Ndubisi, N. O., & Jantan, M. (2003), Evaluating IS usage in Malaysia small and medium sized companies using technology acceptance model. *Logistics Information Management*, 16(6), 440-500.
- Nelson, M. R., (2002). Recall of brand placements in computer/video games, *Journal of Advertising Research*, 42(2), 80-92.
- Nicholson, S. (2012). A user-centered theoretical framework for meaningful gamification, *Games+ Learning+ Society*, 8, 1
- Norris, C.E., & Colman, A.M. (1993). Context effects on recall and recognition of magazine advertisements. *Journal of Advertising*, 21(3), 37-46.
- O'Neil, H.F., Wainess, R. & Baker, E.L. (2005). Classification of learning outcomes: Evidence from the computer games literature, *The Curriculum Journal*, 16(4), 455-474.
- Oliver, P., Marwell, G., & Teixeira, R., (1985): *A Theory of the Critical Mass. I*.
- Owolabi K. O. & Olu-wabi F. E. (2009). Corporate Social Responsibility and Crises of Development in Africa. *Journal of sustainable Development in Africa*, 10 (4), 218-230.
- Park, H.J. & Bae J.H. (2014). Study and Research of Gamification Design, *International Journal of Software Engineering and Its Applications*, 8(8), 19-28.
- Park, S. Y. (2009). An analysis of the Technology Acceptance Model in understanding university students' behavioral intention to use e-learning, *Educational Technology & Society*, 12 (3), 150-162.

- Pikkarainen, T., Pikkarainen, K., Karjaluoto, H., & Pahnla, S., (2004). Consumer acceptance of online banking: an extension of the technology acceptance model, *Internet Research*, 14(3), 224-235.
- Podsakoff, P. M., MacKenzie, S. B., Lee, J.Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88, 879-903
- Ramayah & Jantan (2003). Intention to Purchase through the World Wide Web (WWW): The Malaysian Experience. *The Third International Conference on Electronic Commerce Engineering*, Hangzhou, China.
- Ramayah, T. D., Tham, K. T. & Aafaqi, B. (2003). Perceived Web Security and WebBased Online Transaction Intent. Multimedia, *Cyberscape Journal*, 1, 131-141.
- Ramayah, T., Lam, S.C. & Sarkawi, F. (2003). Attitude and Intention to Use Web-based Supply Chain Management (SCM) among SME's. *Asia Pacific Seminar on E- Customer Relationship Management*, Shah Alam, Selangor, 8-9th July, Malaysia
- Ramayah, T., Ma'ruf, J.J., Jantan, M., & Osman, M. (2002). Technology Acceptance Model: is it applicable to users and non users of internet banking. The proceedings of The International Seminar, Indonesia-Malaysia, *The role of Harmonization of Economics and Business Discipline in Global Competitiveness*, Banda Aceh, Indonesia
- Reiss, S. (2000). *Who am I? The 16 basic desires that motivate our actions and define our personality*, New York: Penguin Publishing
- Rodrigues, L.F., Costa, C.J. & Oliveira, A. (2013). The adoption of gamification in e-banking, *ISDOC'13*, July 11-12, 47-55.
- Rogers, E. (1995), *Diffusion of Innovations (4th ed.)*, New York: The Free Press

- Rughinis, R. (2013). Talkative objects in need of interpretation, re-thinking digital badges in education, In *CHI'13 Extended Abstracts on Human Factors in Computing Systems*, pp. 2099-2108
- Salen, K., & Zimmerman, E. (2004). *Rules of Play Game Design Fundamentals*, United States of Amerika: Massachusetts Institute of Technology
- Sallam, M.A. & Algammash, F.A. (2016). The Effect of Attitude toward Advertisement on Attitude toward Brand and Purchase Intention, *International Journal of Economics, Commerce and Management*, 4 (2), 509-520.
- Savitskie, K.; Royne, M.; Persinger, S.; Grunhagen, M. & Witte, C. (2007). Norwegian Internet Shopping Sites: An Application & Extension of the Technology Acceptance Model. *Journal of Global Information Technology Management*, 10 (4), 54.
- Shepperd, J. A. (2001). Social loafing and expectancy-value theory. In S. G. Harkins (Ed.), *Multiple perspectives on the effects of evaluation on performance* (pp. 1–24). New York: Kluwer
- Shroff, R.H., Deneen, C.C. & Ng, E.M.W., (2011). Analysis of the technology acceptance model in examining students' behavioural intention to use an eportfolio system, *Australasian Journal of Educational Technology*, 27(4), 600-618.
- Smith, T. J. (2008). Senior citizens and e-commerce websites: The role of perceived usefulness, perceived ease of use, and Web site usability. Informing Science: the *International Journal of an Emerging Transdiscipline*, 11, 59-83.
- Soroa-Koury, S. & Yang, K.C.C. (2010), Factors affecting consumer's responses to mobile advertising from a social norm theoretical perspective, *Telematics and Informatics*, 27, 103-113.
- Spears, N. & Singh, S.N. (2004). Measuring attitude toward the brand and purchase intentions. *Journal of Current Issues and Research in Advertising*, 26(2), 53-66.

- Straub, D.W. Keil, M. & Brenner, W. (1997), Testing the technology acceptance model across cultures: a three country study, *Information & Management*, 33, 1-11.
- Sukpanich, N. & Chen, L. (1999). Antecedents of desirable consumer behaviors in electronic commerce, Proceedings of the 5th Americas Conference on Information Systems, 550-552.
- Tahashi, D. (2008), Funware's threat to the traditional video game Industry, Venture beat, available at: <http://goo.gl/O9ISq>
- Taylor, D.G., Lewin, J.E., & Strutton, D. (2011). Friends, Fans, and Followers: Do Ads Work on Social Networks? How Gender and Age Shape Receptivity. *Journal of Advertising Research*, 51(1), 258-275.
- Taylor, S. & Todd, P.A. (1995). Understanding information technology usage: a test of competing models. *Information Systems Research*, 6(1), 44-176.
- Teo, T.S.H., Lim, V.K.G., & Lai, R.Y.C. (1999). Intrinsic and extrinsic motivation in Internet usage. *Omega International Journal of Management Science*, 27(1), 25-37.
- Tsai, C., & Chang, C. (2007). The effect of physical attractiveness of models on advertising effectiveness for male and female adolescents. *Journal of Adolescence*, 42, 827-836.
- Tu, C.C., Fang, K. & Lin, C.Y., (2010). Predicting consumer repurchase intentions to shop online. *Journal of Computers*, 5, 1527-1533.
- Venkatesh, V. & Davis, F. (2000). A theoretical extension of the technology acceptance model: four longitudinal field studies, *Management Science*, 46 (2), 186-204.
- Venkatesh, V. (2000). Determinants of Perceived ease-of-use: Integrating control, intrinsic motivation, and emotion into the technology acceptance model, *Information Systems Research*, 11, 342-365.
- Venkatesh, V., Morris, M.G., Davis, G.B. & Davis, F.D. (2003), User Acceptance of Information Technology: Toward a Unified View, *MIS Quarterly*, 27(3), 425-478.

- Wise, K., Bolls, P., Kim H., Venkataraman, A. & Meyer, R. (2008), Enjoyment of Advergimes and Brand Attitudes: The Impact of Thematic Relevance, *Journal of Interactive Advertising*, 9(1), 14-25.
- Wu, J. & Liu D. (2007). The effects of trust and enjoyment on intention to play online games, *Journal of Electronic Commerce Research*, 8(2), 128-140.
- Xu, X.J. (2010) The Effect of Advertising Persuasion. Beijing Technology and Business University (*Social Sciences*), 25, pp.79-83
- Yalcin, M. & Demir, I. E. (2009), Using Associations to create positive brand attitude for generation Y consumers: application in fashion retailing, *The Journal of Faculty of Economics and Administrative Sciences*, 14 (2), 261-276.
- Yannakakis, G. N., & Hallam, J. (2007), Towards optimizing entertainment in computer games, *Applied Artificial Intelligence*, 21, 933-971.
- Yi, M. Y., & Hwang, Y. (2003). Predicting the Use of Web-Based Information Systems: Self-Efficacy, Enjoyment, Learning Goal Orientation, and the Technology Acceptance Model. *International Journal of Human-Computer Studies*, 59(4), 431-449.
- Zichermann, G. & Linder, J. (2010), *Game-Based Marketing: Inspire Customer Loyalty Through Rewards, Challenges and Contests*, New York: John Wiley & Sons

Appendix: Measurement items

Perceived Usefulness

The game effectively made me think about Oreo.

The game increased my familiarity with Oreo.

I found the game useful in the branding of Oreo.

Perceived Ease of Use

It was easy for me to learn how to play that game and compete with another person.

It was flexible for me to play that game and compete with other people.

It was easy to access the game and get another person to compete.

Perceived social Influence

If my friends think it is fun to win the game competition and get the prize, I will do it.

If my classmates think it is fun to win the game competition and get the prize, I will do it.

If my classmates like to join the game competition, I will do it as well.

If people I know think it is fun to win the game competition and get the prize, I will do it.

If people I know like to join the game competition, I will do it as well.

Perceived Enjoyment

The game was interesting.

The game made me feel enjoyable.

The game was a good way to spend my leisure time.

The game involves me in an enjoyable process.

Intention of Engagement

I intend to join this activity again.

I intend to play that game frequently in the future.

I intend to continue playing that game because it is fun.

Brand Attitude

This activity makes me feel more emotionally bonded with Oreo brand now.

This activity evoked positive feelings about Oreo brand.

I shall be more inclined to buy Oreo brand from now on.

This activity makes me to derive pleasure from choosing Oreo.

This activity makes me delighted to choose Oreo.

This activity makes me have intention to use other Oreo's service or products.

I like the experience of that activity about playing Oreo's game and win the prize of the competition.

I may recommend Oreo to other people.